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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,746	09/22/2003	Michael J. Stevenson	STEV-110C	1895

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EXAMINER	
PARKER, FREDERICK JOHN	
ART UNIT	PAPER NUMBER
1762	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/667,746	STEVENSON ET AL.	
	Examiner	Art Unit	
	Frederick J. Parker	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) *2 and 3* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/30/05
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claims 2-3 are withdrawn from consideration, but their limitations have been incorporated into claim 1 on which they depend. Therefore, it appears that claims 2-3 should be cancelled.

Specification

The amendments in response to the Objections to the Specification of the Previous Office Action are acknowledged and appreciated, and the Examiner withdraws the objections.

Claim Objections

The amendments in response to the Claim Objections of the Previous Office Action are acknowledged and appreciated, and the Examiner withdraws the objections.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1,4,6,9,10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jenett US 2628172 in view of Hoopman et al US 5681217.

Jenett teaches printing designs, decoration, protective surfaces, etc to a polyethylene (an elastomer) surface (per claim 2) by coating the surface with a dispersion of fine polyethylene particles (per claim 3), an organic liquid medium

(same as carrier, per claim 7), and a suitable resin tackifier, after which the coated surface is heated 80-200 C (175-392 F, encompassing the range of claim 9/c) to evaporate solvent (drying) and cause fusion/ bonding of the coating to the substrate (col. 2, 14-30; col. 4, 59-65; col. 5, 9-21). The dispersion fuses at a sufficient temperature which prevents thermal distortion of the substrate (col. 3, 51-5; col. 2, 14-20; col. 4, 56-65). Particle sizes of the polyethylene (PE)

particles is 0.5-5 microns which is less than 140 microns per claims 4 and 10. Addition of inorganic particles is not cited.

Hoopman teaches to apply wear-resistant textured surfaces to polymeric substrates (encompassing elastomeric/ PE resins) by dispersing inorganic particles into a resin binder such as thermoplastic polymer materials (encompassing elastomers), col. 11, 56 to col. 12, 35, and heating to cause fusion. Since Hoopman teaches forming protective/ wear-resistant layers comprising a polymer binder with inorganic particles, and Jenett explicitly teaches forming coating as protective surfaces, there would have been the suggestion to improve the protective surfaces of Jenett by incorporating the inorganic particles of Hoopman to improve the wear-resistant/ protective properties of the dispersion coatings on the polyethylene. As to claim 1 b, the inorganic particles range from 0.1-1000 microns, preferably 0.1-100 microns, which would pass through a 15 mesh (1.1 mm) mesh sieve.

As to claims 6 and 9, while the proportion of tackifier to polyethylene/ polyolefin powder and solvents are not explicitly cited, it would have been apparent from column 5 of Jenett that the amounts of components would have been determined by optimization by one of ordinary skill to provide a suitable coating dispersion.

Column 5, 33-54 of Jenett teaches the fusion temperature of the coating "up to just below the melting point of the base, e.g. about 5 C below". Thus the sole difference between the claims and combination of references is that Jenett just approaches the melting point whereas Applicants just reach the melting point, so the difference is a matter of one or a few degrees. It is well established that where the principle difference between a claimed process and the prior art is merely a temperature difference, it is incumbent upon the Applicant to establish criticality of that

difference, Ex parte Khusid 174 USPQ 59. In the instant case the difference would have been expected to produce similar results since melting point of polymers such as PE is not instantaneous and that surface melting would have been expected just below a recited melting point value. Further, it is the Examiner's position that increasing temperature of the only a surface to a point to just where the surface is tacky would have been an obvious variation to provide greater adhesion of the applied inorganic particles, as is well-known in the art. Further the temperature ranges of Applicants and the prior art include temperatures at which substrates of a higher melting point would have experienced surface melting given the guidance of Jenett on col. 3, 52-56.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Jennet by incorporating inorganic particles as disclosed by Hoopman et al to a tacky substrate to provide an improved protective coating with enhanced wear-resistance and greater particle adhesion.

Applicants argue that (1) in Jenett, fusion occurs between the particles of the coating itself and not with the underlying substrate because the treating temperature is "just below the melting point of the base"; (2) since Jenett does not teach reaching the melting temperature of the base material, the coating cannot fuse to the base and hence "there can be no permanency of the coating; and (3) how would it be obvious to ignore the explicit teachings of the prior art?.

In Jenett, a PE coating of at least a slightly lower molecular weight than the base is applied to a surface of the PE base. Col. 5, 50+ states that in the heat treatment the deposited PE coating material is fused to give a continuous film and "also is bonded permanently and inseparably to

the film base or substrate", in complete contradiction to Applicants argument #2. Further, Applicants challenge the Examiner's position that the melting point of polymers are not instantaneous but rather a range, so some degree of melting would necessarily have occurred at temperatures just below the "accepted" melting point of a material. To support this position, the Examiner introduces "Polymer Science Dictionary" Page 307 to illustrate the state of the art and what would have been within the purview of one skilled in the art at the time the invention was made. It states that recited melting points actually occur over a wider range of temperature- typically 10-20 C- and that quoted melting points are imprecise and generally indicative of the high end of the range, that is melting in part has already occurred when the quoted melting point temperature is achieved. Thus one skilled in the art would have recognized that the small temperature difference of "about 5 C below" the melting point of the PE base would have involved at least some degree of melting of the base surface, which would account for Jennet's observation that the coating is "is bonded permanently and inseparably to the film base or substrate". Thus the skilled artisan would have recognized that co-fusion/ melting between base and coating during thermal treatment would have occurred, regardless of whether or not Jennet recognized or expressed the mechanism of bonding (which is not required for a patent). Thus Applicants' first argument is not persuasive. Finally, the Examiner recognizes the reference does not utilize the same semantics as Applicants claims. However, citations of col. 3, 51-56; col. 5, 33-54; col. 9, 42-55; and the response above show Jenett implicitly includes at least some degree of fusion between the PE coating and PE base during heating, which would have been understood by one of ordinary skill. Thus, the third argument is not persuasive because the

argument ignores the totality of factual evidence which would have been appreciated by one of ordinary skill.

Applicants argue nothing in Hoopman teaches or suggests the coating is fused onto the backing. This is incorrect; per figure 10, inorganic particles 16 are dispersed in binder phase 17 on surface 11 of the backing sheet. In view of col. 4, 45-61, the particle-binder must be adhered to the base sheet. The previous rejection incorporated Hoopman because the inorganic particles would have imparted wear resistance to the PE coatings of Jenett which are taught to be protective in nature, and as such the particles would have improved the protective wear resistance of the coatings.

Applicants arguments are not persuasive; the rejections are maintained.

3. Claims 5,7,11,12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jenett US 2628172 in view of Hoopman et al US 5681217 and further in view of Brant et al US 5114763.

Jenett and Hoopman et al are cited for the reasons above which are incorporated herein. Specific aliphatic hydrocarbon tackifiers are not taught. However, Brant teaches successfully forming polyethylene (elastomer) films using a compatible tackifier including aliphatic and cycloaliphatic hydrocarbon resins (col. 6, 5-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Jenett in view of Hoopman et al by incorporating the tackifiers of Brant et al because aliphatic and cycloaliphatic hydrocarbon resins are known tackifiers for polyethylene formulations.

Jenett and Hoopman are cited for the same reasons previously discussed, which are incorporated herein. Applicants argue Brant is cited because it teaches specific aliphatic hydrocarbon tackifiers for PE formulations which successfully results in PE coatings. Since Jenett teaches to use suitable tackifiers for the PE coating formulations, it would have been obvious to use the specific tackifiers of Brant as the tackifiers for the PE formulations of Jenett because those specific tackifiers of Brant are taught to be successful for forming PE coatings. Applicants arguments are not persuasive; the rejections are maintained.

4. Claims 8,13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jenett US 2628172 in view of Hoopman et al US 5681217 and further in view of Kagota et al US 5252393.

Jenett and Hoopman et al are cited for the reasons above which are incorporated herein. Aqueous carriers are not taught.

Kagota et al teaches forming aqueous polyethylene dispersions comprising resin particles and a suitable tackifier. While the dispersions are not used for identical coatings, the reference clearly teaches that an aqueous carrier media successfully forms polyethylene-tackifier dispersions. Since one of ordinary skill would have been motivated to substitute the organic solvent carriers of the primary reference with water to overcome health, regulatory, and flammability problems associated with organic hydrocarbon solvents, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Jenett in view of Hoopman et al by incorporating the aqueous carrier of Kagota et al for the hydrocarbon carrier of

the dispersion to overcome the health, regulatory, and flammability problems associated with organic hydrocarbon solvents.

Jenett and Hoopman are cited for the same reasons previously discussed, which are incorporated herein. Applicants recognize Kagota is cited solely for the teachings of using water as the vehicle for PE-tackifier coating formulations. Applicants argument that the incorporation of hydrophilic groups is necessary in the reference is unclear because their claims do not prohibit such additions to the claimed formulations. Applicants arguments are not persuasive; the rejections are maintained.

Conclusion

The prior art teaches applying a PE coating to a PE substrate, and heating to cause fusion of the coating and a permanent, inseparable bond between coating and base. Jenett teaches heating within about 5 degrees of the melting point of the base. It is known in the art that quoted melting points represent the upper end of a melt range, hence melting of the base to at least some extent simultaneous with fusion/ melting of the coating when the treatment temperature is within a few degrees of the recited melting point of the base would have necessarily occurred to produce the fused coating having a permanent, inseparable bond with the base.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571/272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Frederick J. Parker
Primary Examiner
Art Unit 1762

fjp